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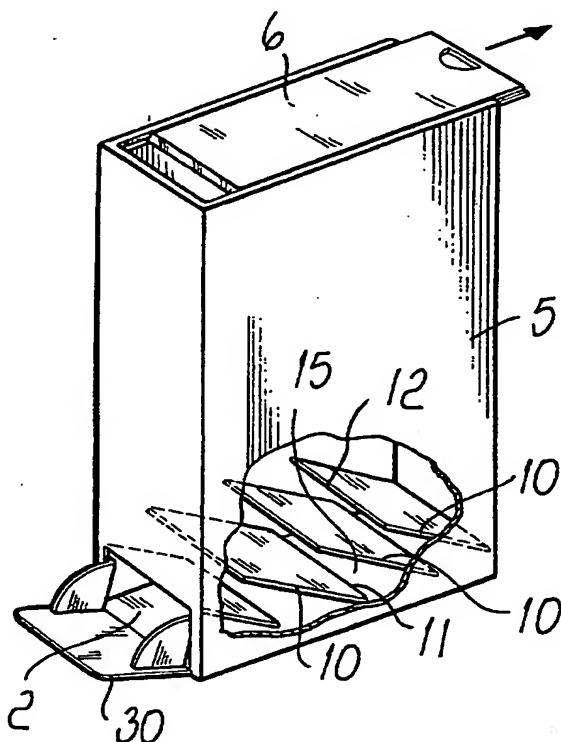
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(54) Title: DOSAGE DEVICE FOR CONTAINERS OF PRODUCTS IN POWDERY, GRANULAR AND LOOSE FORM IN GENERAL



(57) Abstract: A dosage device for containers of products in powdery, granular and loose form in general, comprising a plurality of inclined wings (10) which are mutually spaced and have a dosage edge (11) which delimits, in cooperation with a bottom (20), a dosage chamber (21) provided with dispensing openings, the wings (10) forming, between a leading edge, which is directed toward a container (2) with which the dosage device is to be associated, and the dosage edge, channels (15) which allow the passage of the product toward the dosage chamber (21), when the container (2) rests on the bottom, and the return toward the container of the product that has remained in the channels (15), when the container is inclined in order to dispense the dosed product.

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— Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

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DOSAGE DEVICE FOR CONTAINERS OF PRODUCTS IN POWDERY, GRANULAR AND LOOSE FORM IN GENERAL

Technical Field

5 The present invention relates to a dosage device for containers of products in powdery, granular and loose form in general.

Background Art

Conventional products in powdery, granular and loose form in general already use dosage devices which normally perform a volumetric dosage by using movable, rotating or sliding parts in which the material is
10 accumulated, with the possibility to dispense the dosed amount by moving the dosage chamber.

These solutions are very complicated from a structural point of view, so that it is not conceivable to use them in containers of the disposable type or in any case in containers which must have an extremely low cost.

15 Disclosure of the Invention

The aim of the present invention is to eliminate the above-described drawbacks by providing a dosage device for containers of products in powdery, granular and loose form in general which, by having no movable elements for performing volumetric dosage, can have a structure which is
20 extremely simple and accordingly very cheap.

Within this aim, an object of the present invention is to provide a dosage device for containers and a container with a dosage device which, by having no movable parts, is absolutely free from jamming or breakage determined by use.

25 Another object of the present invention is to provide a dosage device which, thanks to its particular constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

Another object of the present invention is to provide a dosage device which can be easily obtained starting from commonly commercially
30 available elements and materials and further allows widespread diffusion

among users.

This aim and these and other objects which will become better apparent hereinafter are achieved by a dosage device for containers of products in powdery, granular and loose form in general, according to the present invention, characterized in that it comprises a plurality of inclined wings which are mutually spaced and have a dosage edge which delimits, in cooperation with a bottom, a dosage chamber provided with a dispensing opening, said wings forming, between a leading edge, which is directed toward the container with which the dosage device is associated, and said dosage edge, channels which allow the passage of the product toward said dosage chamber, when said container rests on said bottom, and the return toward said container of the product that has remained in said channels, when said container is inclined in order to dispense the dosed product.

Brief Description of the drawings

Further characteristics and advantages of the present invention will become better apparent from the following detailed description of some preferred but not exclusive embodiments of a dosage device for containers of products in powdery, granular and loose form in general, according to the invention, which is illustrated with the aid of the accompanying drawings, wherein:

Figure 1 is a schematic and partially cutout perspective view of a container with a dosage device according to the present invention;

Figure 2 is a partially cutout perspective view of a dosage device rigidly coupled to a container according to a second embodiment of the present invention;

Figure 3 is a partially cutout perspective view of the step for the detachable coupling of a dosage device to a container;

Figure 4 is a sectional view of the dosage device in the dosage position;

Figure 5 is a schematic view of the step for dispensing the dosed product;

Figure 6 is a schematic view of a dosage device with a single product

passage channel.

Ways of carrying out the Invention

With reference to the figures, the dosage device for containers of products in powdery, granular and loose form in general, according to the present invention, can be provided so as to be directly incorporated inside a container which can be filled, or can optionally be provided as a body which can be rigidly fixed to a container of a package and the like or optionally detachably applied directly by the user.

The dosage device, as shown in Figures 2 and 3, has a body 1 which can be rigidly associated with the container 2, as shown in Figure 2, for example by gluing or by means of other similar assembly methods.

The dosage device, as shown in Figure 3, can instead be provided as a lid-type element which can be detachably applied to a container 2; in this case, seats 3 are provided for inserting the free edge of the container 2 by pressing.

As shown in Figure 1, it is possible to provide a box-like body 5 which forms the container, is internally provided with the dosage device, described in greater detail hereinafter, and has, at the opposite end, a lid-type element 6 in order to perform filling with the product.

The dosage device or the container with the dosage device comprises a plurality of wings 10 which are inclined and mutually spaced.

The wings 10 have a dosage edge 11 which in practice delimits, together with the bottom 20 of the body 1, a dosage chamber 21 into which the powdery, granular and loose product in general, generally designated by the reference numeral 22, is introduced.

At the dosage chamber there is provided an opening which is controlled by a flap 30 which can be tilted down in order to dispense the product.

A plurality of channels 15 are formed between the leading edge 12 of the wings 10, which is directed toward the inside of the container, and the dosage edge 11; the channels are inclined and are arranged so as to allow

the product to pass toward the dosage chamber 21 when the container rests on its bottom 20, as shown in Figure 4.

The number, distance and inclination of the wings 10 depend on the type and particle size of the product to be dosed, so that when the container is arranged on its bottom one obtains the gravity filling of the chamber 21, which assumes a preset volume.

Upon dispensing, by opening the flap 30 and tilting the container, as shown in Figure 5, the product that has remained in the channels 15 is conveyed back toward the container, while only the product arranged in the dosage chamber 21 is dispensed, thus always having an extremely precise dosage.

A solution which is conceptually similar to the preceding one is described with reference to Figure 6; in practice, in said solution a single duct 15a is formed and is arranged between a first wing 10a and a second wing 10b, which are also inclined.

In order to reduce the dosage volumes, an inclined bottom 20a is provided which delimits a dosage channel 21a which is also closed by a flap 30 which can be opened in order to achieve dosed dispensing of the product.

From the above description it is thus evident that the invention achieves the intended aim and objects, and in particular that a dosage device for containers, or a container with dosage device, is provided which is extremely practical and versatile and can be easily applied to ordinary packages, such as for example cardboard boxes, with very low costs, allowing to dose the dispensed product and being particularly convenient for packages of rice, pasta, sugar and granular products in general.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

All the details may further be replaced with other technically equivalent elements.

In practice, the materials employed, as well as the contingent shapes and

dimensions, may be any according to requirements.

The disclosures in Italian Patent Application No. MI99A002494 from which this application claims priority are incorporated herein by reference.

CLAIMS

1. A dosage device for containers of products in powdery, granular and loose form in general, characterized in that it comprises a plurality of inclined wings which are mutually spaced and have a dosage edge which delimits, in cooperation with a bottom, a dosage chamber provided with dispensing openings, said wings forming, between a leading edge, which is directed toward a container with which the dosage device is to be associated, and said dosage edge, channels which allow the passage of the product toward said dosage chamber, when said container rests on said bottom, and the return toward said container of the product that has remained in said channels, when said container is inclined in order to dispense the dosed product.

2. A container with dosage device for containers of products in powdery, granular and loose form in general, characterized in that it comprises a box-like body which is internally provided with a plurality of inclined wings which are mutually spaced and have a dosage edge which delimits, in cooperation with a bottom, a dosage chamber provided with a dispensing opening, said wings forming, between a leading edge, which is directed away from said dosage edge, and said dosage edge, channels which allow the passage of the product toward said dosage chamber, when said box-like body rests on said bottom, and the return toward said box-like body of the product that has remained in said channels, when said box-like body is inclined in order to dispense the dosed product, said box-like body having an openable lid at the opposite end with respect to said bottom.

3. The dosage device according to claim 2, characterized in that it comprises a body which is rigidly associable with said container of a package.

4. The dosage device according to claim 1, characterized in that it comprises a body which is detachably associable with a container of a package.

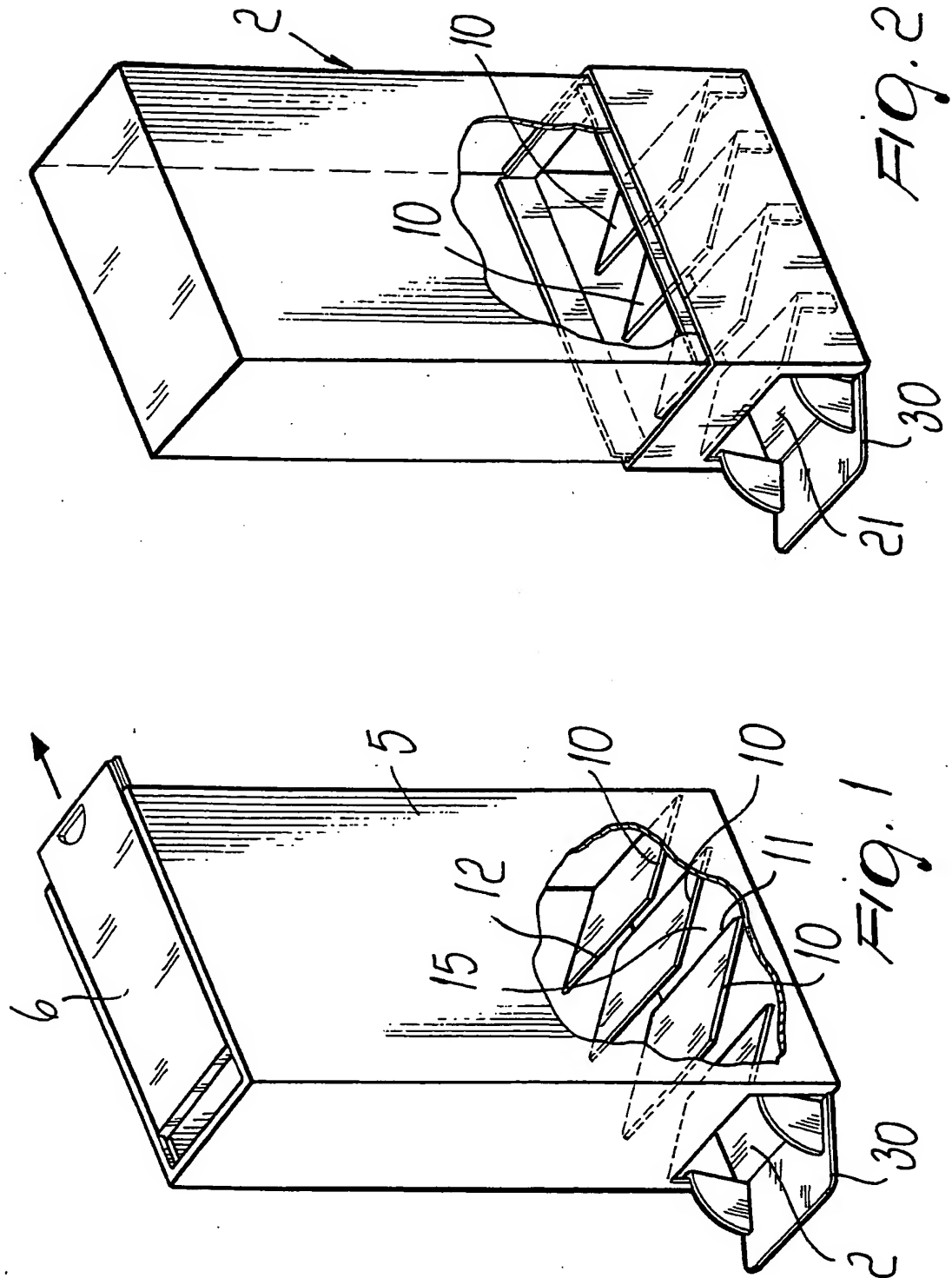
5. The dosage device according to one or more of the preceding claims, characterized in that it comprises, in said dosage chamber, a flap which can be tilted down.

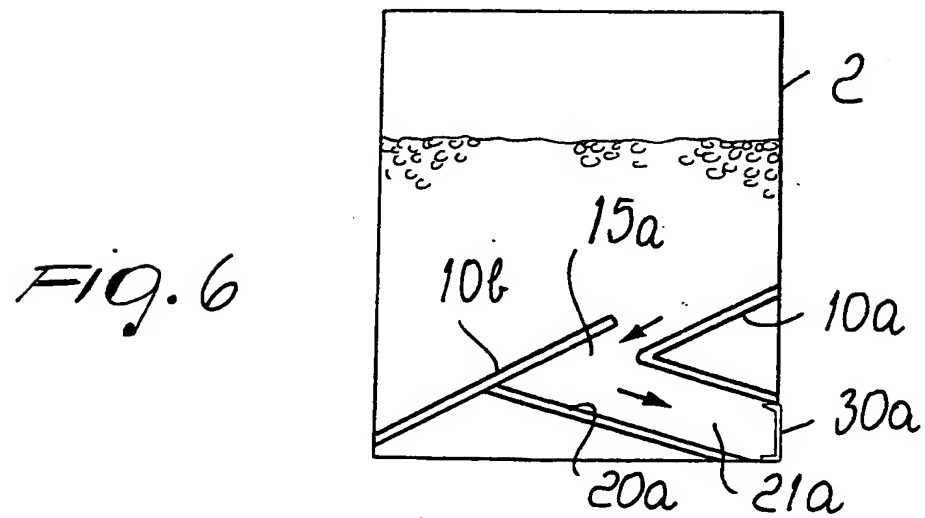
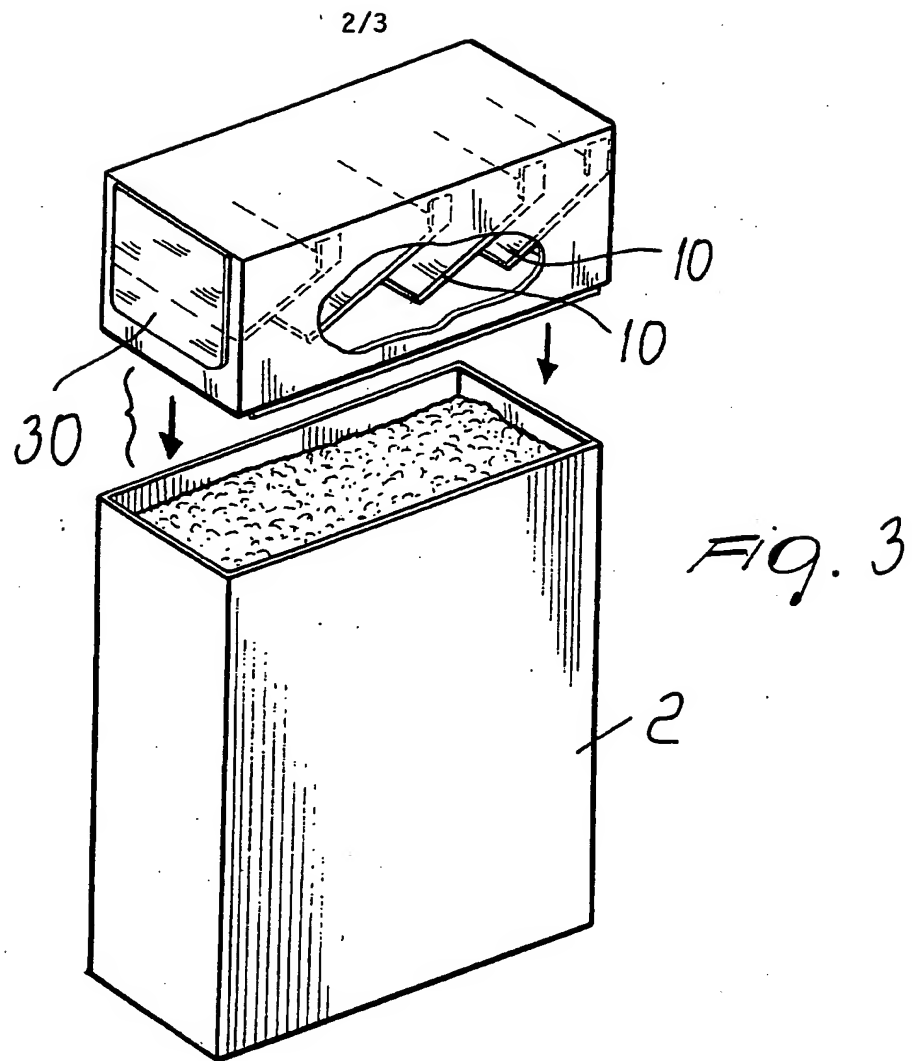
6. The dosage device according to one or more of the preceding claims,
5 characterized in that the number, distance and inclination of said wings are a function of the type and particle size of the product to be dosed.

7. The dosage device according to one or more of the preceding claims, characterized in that said product is transferred by gravity into said dosage chamber.

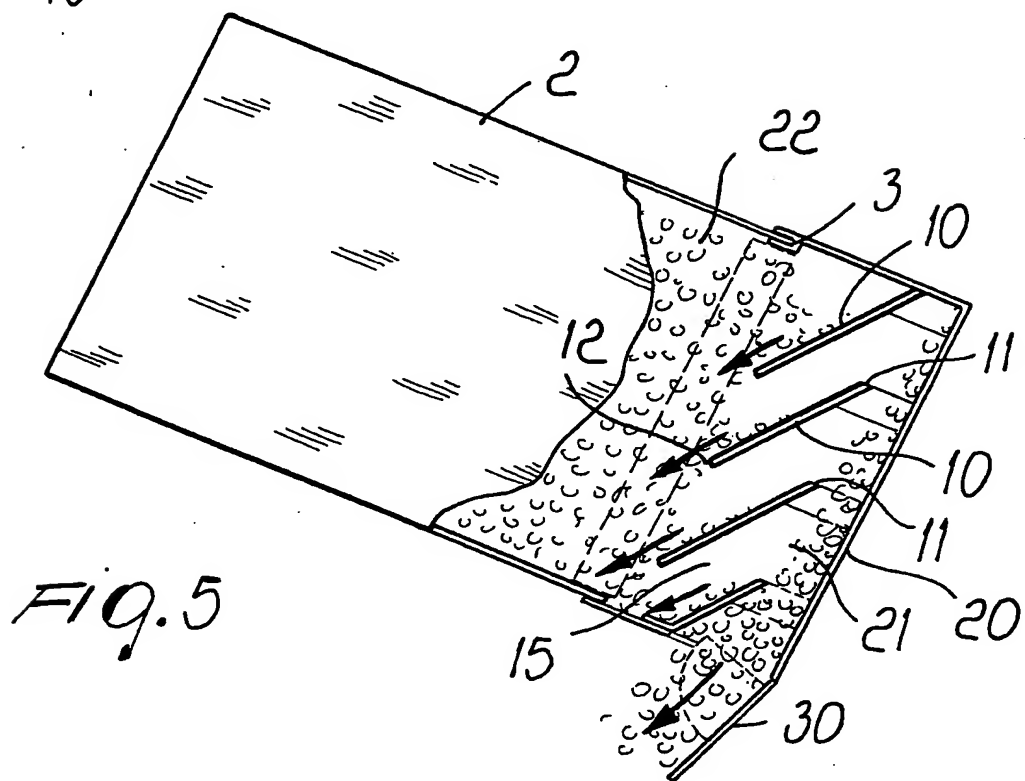
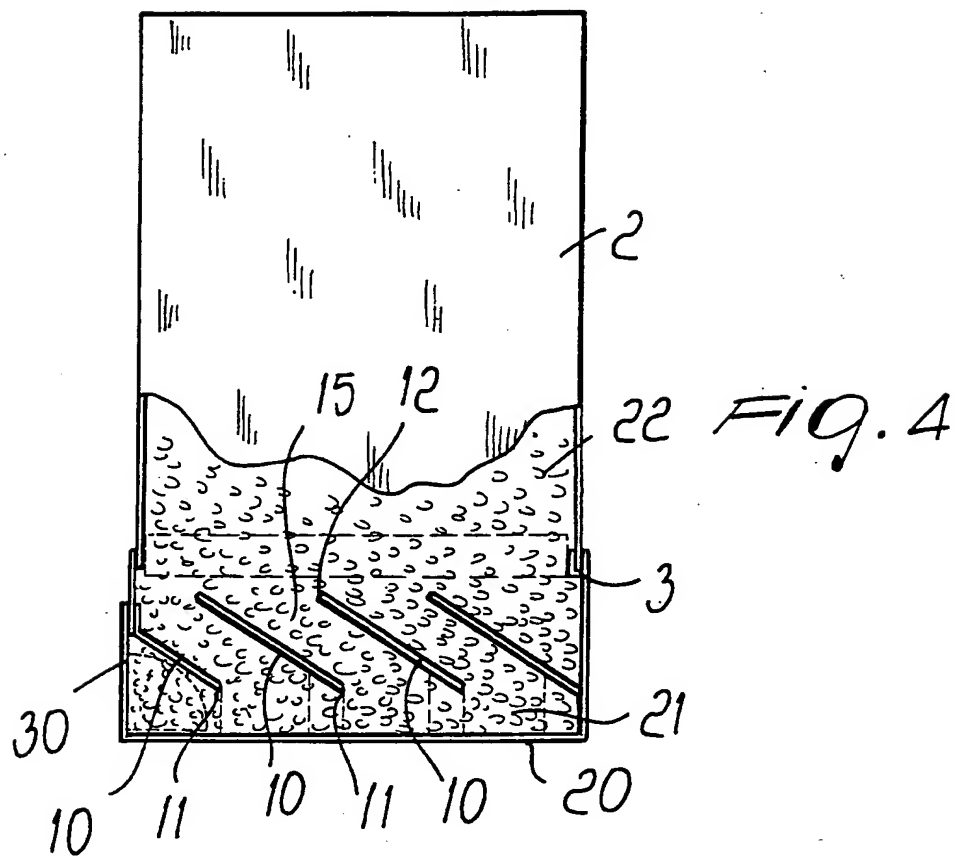
10 8. The dosage device according to one or more of the preceding claims, characterized in that it comprises a single channel which is formed between a first inclined wing and a second inclined wing, said bottom being inclined in order to form a dosage channel which is closed by an openable flap.

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INTERNATIONAL SEARCH REPORT

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01F B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 910 213 A (FOREMAN CALVIN E) 27 October 1959 (1959-10-27) column 1, line 60 -column 3, line 30; figure 1	1-7
X	US 2 799 436 A (BERNHARDT ROBERT) 16 July 1957 (1957-07-16) column 4, line 34 -column 8, line 36; figures 1-8	1-7
X	FR 2 615 493 A (WON IL SONG) 25 November 1988 (1988-11-25) page 3, line 4 -page 5, line 20; figures 1-6	1-7

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 938 394 A (BIACCHI JOSEPH A) 3 July 1990 (1990-07-03) column 1, line 16 -column 2, line 11; figures 1-4	1-3,7,8
X	US 2 092 983 A (MILWARD VICTOR T) 14 September 1937 (1937-09-14) page 1, left-hand column, line 41 -right-hand column, line 37; figures 1-6	1-3,5,7, 8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2910213	A	27-10-1959	NONE	
US 2799436	A	16-07-1957	NONE	
FR 2615493	A	25-11-1988	NONE	
US 4938394	A	03-07-1990	NONE	
US 2092983	A	14-09-1937	NONE	